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Hydrogen Functionalized Graphene for possible Spintronics Applications

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Abstract content
 (Max 300 words)

Few Layered of Graphene (FLG), were synthesized using Plasma enhanced Chemical Vapor (PECVD) deposition process and subsequently functionalized with hydrogen in hydrogen-plasma-atmosphere at different temperature starting from room temperature to 200oC to convert them into Graphone (attachment of hydrogen in one layer of graphene). Both the graphene (functionalized and non-functionalized) were characterized with X-ray absorption near edge structure spectroscopy (XANES), Raman, X-ray photoemission spectroscopy (XPS) etc. and found that the electronic structural properties of graphene were changed on hydrogenation. Surprisingly, it was also seen that the magnetic properties is enhanced drastically on hydrogenation of graphene (graphone). Hydrogen content were estimated from XANES spectra and found that the magnetization is changes with hydrogen content present in the graphone. Results suggested that this graphene/graphone is very useful for the spintronics applications.

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